
VICTORIAN ENTOMOLOGIST

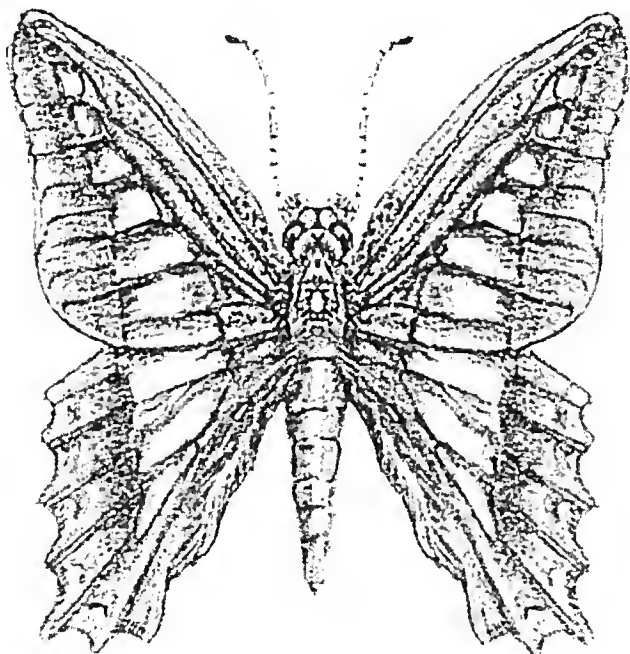


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News Bulletin of The Entomological Society of Victoria Inc.

THE ENTOMOLOGICAL SOCIETY OF VICTORIA (Inc)

MEMBERSHIP

Any person with an interest in entomology shall be eligible for Ordinary membership. Members of the Society include professional, amateur and student entomologists, all of whom receive the Society's News Bulletin, the Victorian Entomologist.

OBJECTIVES

The aims of the Society are:

- (a) to stimulate the scientific study and discussion of all aspects of entomology,
- (b) to gather, disseminate and record knowledge of all identifiable Australian insect species,
- (c) to compile a comprehensive list of all Victorian insect species,
- (d) to bring together in a congenial but scientific atmosphere all persons interested in entomology.

MEETINGS

The Society's meetings are held at La Trobe University, 2nd Floor, Room 2.29, 215 Franklin Street, Melbourne (Opposite the Queen Victoria Market) Melway reference Map 2F B1 at 8 p.m. on the third Friday of even months, with the possible exception of the December meeting which may be held earlier. Lectures by guest speakers or members are a feature of many meetings at which there is ample opportunity for informal discussion between members with similar interests. Forums are also conducted by members on their own particular interest so that others may participate in discussions.

SUBSCRIPTIONS

Ordinary Member	\$20.00 (overseas members \$22)
Country Member	\$16.00 (Over 100 km from GPO Melbourne)
Student Member	\$12.00
Associate Member	\$ 5.00 (No News Bulletin)

Associate Members, resident at the same address as, and being immediate relatives of an ordinary Member, do not automatically receive the Society's publications but in all other respects rank as ordinary Members.

Cover design by Alan Hyman.

Cover illustration of the Blue Triangle butterfly, *Graphium sarpedon* L. by Rhonda Millen.

MINUTES OF THE GENERAL MEETING 15 FEBRUARY, 2002

Meeting opened at 8.15pm

Present: D Dobrosak I. Endersby, V. Jaeger, A. Kellehear, D. Stewart, J. Tinetti, P. Carwardine

Apologies: G Weeks, R McMahon

Minutes: Minutes of the meeting of 14/12/02 were accepted with the note that 'Malaysia' should read 'Philippines' M: I Endersby S: D Dobrosak. The following description of the video shown was also inadvertently omitted: "Kelvyn Dunn showed a video of butterflies of The Philippines observed during his visit in November 1999. 28 species were depicted, mostly from Mindanao. Of interest was a same-sex courtship of the grass-blue, *Zizina otis*, in which a male mimicked female refusal signals, and forest ground-litter feeding habits of an endemic owl butterfly, *Faunis leucis*. Various other species were seen feeding at flowers and dung".

Treasurers report:

- Account balances are : General account: \$6,565; Le Souëf account: \$3,669. M: I Endersby, S: D Stewart.
- Printer costs are expected to rise. This was referred to council for discussion.
- The need to develop a project was referred to the Council.

Editor's report:

Articles are requested for next month.

Correspondence:

- Notification of the Australian Entomological Society's AGM and Scientific Conference was tabled. It is in Fremantle in Sept 2002. The Society is affiliated with this group and a note about the conference will be included in the next newsletter.

General business:

- Membership applications from V Jaeger, H. Rich, C. Timewell, K Stables have been received. These will be confirmed at the next meeting.
- P Marriott was elected to membership.

Speakers

Three members made presentations:

- Ian Endersby spoke on *Collecting and Sampling Insects*. He referred to ethical issues related to collecting. Ian outlined a range of equipment and techniques used for qualitative and quantitative sampling of insects.
- Danny Dobrosak demonstrated equipment he uses to collect specimens of the two species that he studies. He also showed members how to pin specimens.
- Peter Carwardine presented a series of slides of caterpillar specimens that he had photographed. He provided details of where the specimens were located and of techniques used to photograph them.

The president thanked the speakers on behalf of the group.

Possible further production of the booklet *Collecting and Sampling Insects* was referred to council.

Meeting closed at 9.55pm

MINUTES OF THE COUNCIL MEETING, 14 MARCH, 2001

Meeting opened 8.12 pm.

Present: P. Carwardine, I. Endersby, A. Kellehear, D. Stewart, J. Tinetti

Apologies: D. Dobrosak

Minutes: Minutes of the last council meeting were accepted.

Treasurer's Report:

No account balances are available as the books are with the auditor. no substantial transactions have occurred since the last report.

Editor's Report:

The editor reported that he had only sufficient material for a 12-page issue in April and only once before had he published an issue that small. He is also concerned that only a small number of authors are contributing.

General Business:

There was general discussion of an options paper prepared by I Endersby.

There was consensus that the Society should look to expanding and innovating.

The President summarised practical suggestions arising from the discussion:

- The option of promoting the Society as the local Chapter for the Melbourne based members of the Australian Entomological Society should be investigated.
- An advertising budget up to \$1000 could be established and used to promote The Society in newsletters and local newspapers and undergraduate publications.
- The Society could be promoted amongst undergraduates to further develop its professional base.
- Society public relations could be re-examined and active secondment of members to council be undertaken.
- New outreach and membership drive activities could be considered.

General endorsement for the above five suggestions was moved and received.

These 5 action strategies will be further discussed at Council meetings in 2002.

May: Advertising and active secondment to Council.

July: Membership drive, opportunities and events.

September: public relations of the society.

The program of events for meetings in 2002 was briefly discussed.

Meeting closed 9.50 PM.

Courtship, Mating and Oviposition Behavior of *Nacaduba* Moore in Queensland (Lycaenidae: Polyommattinae)

Kelvyn L. Dunn
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Summary

Mating and oviposition behavior in *Nacaduba berenice* (Herrich-Schäffer), and mating, courtship refusal, and moisture feeding in *N. cyanea* (Cramer) are described in detail.

Nacaduba berenice

Locality: Fixter Park, Toogoom, Qld.

Habitat: Shore scrub comprising *Callitris* woodland with understorey of *Cupaniopsis* amongst scattered vine thicket.

Date: 23 January 2002 at c. 2:00pm EST (1400h)

Weather: sunny period during overcast conditions, still, temp. 32°C

Mating behavior

At 2:07pm EST (1407h) a normal sized male (good condition) intercepted and fluttered about an undersized, fresh female as she flew some 2-3m above ground (c.2 seconds). Female was of summer seasonal form having restricted blue central areas (seen in flight). Female flew towards nearest tree located about 0.6m away. Male pursued female some 2-4cm behind. Female landed immediately on sunlit, vertical section of dead vine stem (2-3mm in diameter) entwined about trunk of tall tree at about two-metre height - seemingly the nearest straggly landing substrate from point of meeting. Upon landing female (head upwards) held wings closed and remained still. No 'wing flicking', 'slow fluttering', 'rapid fanning' or other obvious movement was noted.

Immediately female landed, male fluttered above and behind her for a second or two. He then landed about 1cm behind female, and held wings closed. Male did not flick his wings, but crawled slowly up stem until alongside female on her left-hand-side.

When situated beside (2mm apart) and slightly to her rear (head level near her thorax), he gently curled his abdomen around 180° to the right, and effortlessly connected with hers. The female did not withdraw her abdomen on contact. She possibly extended or expanded the terminal segments very slightly to assist mating, but this was not seen with certainty. As male coaxed gently forward, female slowly re-positioned by pivoting 180°, to face head downward. Couple now aligned vertically facing opposite directions, male uppermost. Procedure from interception of female in flight to established copulation took between 10-20 seconds (estimated).

During mating male slowly crawled forward up stem several centimetres. Female released hold of substrate and hung limply from male abdomen, occasionally using legs to clear her body over stem protrusions. Male then moved out horizontally 2-3cm along stem section until female had room to grasp substrate. Female then crawled in reverse for about 0.5cm once horizontal section was reached. Male then remained still. Both adults with wings held closed (vertically).

Couple was encouraged to fly, achieved by sharply tapping the vine. Five flights were observed. On each occasion male carried smaller female. Couple repeatedly selected exposed sticks protruding from shrubs in sunshine. Both adults grasped substrate and held wings closed each time. Carrier flights were brief, more or less direct to a new location over which they manoeuvred temporarily.

before settling. Longest flight involved about 10m, dropping in height one metre, but some flights were only a couple of metres if suitable stick-like substrates were nearby.

Couple was then left undisturbed. During mating no abdominal muscular movements were observed, but whilst on horizontal leaf, female on two separate occasions, rapidly stroked ventral genital area of male with her hind tarsus in a flicking movement; the initial action inadvertently caused male to edge forward one step. This fleeting activity was captured on 6.72 seconds of analogue videotape. Video-editing software used for analysis captured 25 frames a second as digital images. Each frame thus represented 0.04 seconds of behavior.

Tarsal stimulation was achieved using her right rear leg. Sometimes her leg flicked from substrate to the male genitals and back taking up to 0.12 seconds for each stroke (up to three digital frames). At other times she kept her femur fully outstretched, moving only tibia and tarsus - she thereby stroked (or perhaps clawed) male without withdrawing leg to substrate (0.04 seconds per stroke, one frame). Occasionally, even within frames leg movement was blurred except upon genital contact. At times she arched her abdomen to facilitate the contact (figure 1).

During the first session of continuous tarsal-genital stimulation the female repeatedly touched the male's lower genital area 15 times in 1.96 seconds. Female then paused for 0.52 seconds (13 frames), before she commenced again, and repeatedly touched or flicked the male 30 times, comprising 4.36 seconds. At other times during the video recorded sections she remained still for relatively lengthy periods.



Figure 1. Tarsal stimulation of male ventral genital area by female, with female arching abdomen to expose contact site (single video frame). Larger male on left, female right.

During two slight gusts of wind, male was blown horizontal. Female was also dragged slightly to the side on one occasion, but each time breeze dropped male pulled himself upright again. This activity did not disturb couple or cause changes to mating activity. At one time male also crawled forward a few steps and female reciprocated backwards. Occasionally male slid hind wings up and down (very

slightly), to create standard lycaenid wriggling of tails. During coitus (except periods of tarsal stimulation) male's hind wings usually touched those of female, but no overlap occurred (Figure 2).

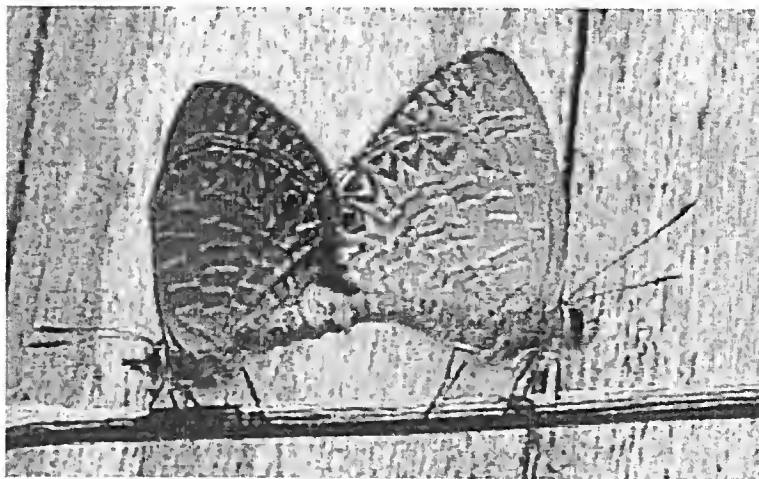


Figure 2. Mating *N. berenice* on stem showing typical stance and wing contact area. Male right (slightly uppermost), smaller female left.

Oviposition behavior

At about 1400h several old females seen fluttering briefly over and about copper-brown juvenile and pale green fresh leaves of small (c. 2m high) *Cupaniopsis anacardioides* (Sapindaceae) – a known larval host (Manski 1960). One female crawled along stems of fresh shoots, flew, then landed close-by on small leaf, about 1m up and quickly deposited a single white egg, then departed. Examination of leaves of various ages revealed a number of eggs, each well separated. Eggshells from which parasitoid wasps had probably emerged were present on some mature dark green leaves along the midrib and near base of major veins (Figure 3). Although larvae are often ant-tended (Eastwood & Fraser 1999), no ants were present on the upper sections of the host, at least on the leaves and stems in the vicinity of the eggs, during the oviposition event.

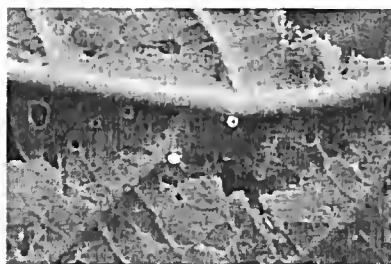


Figure 3. Eggshells near veins beneath leaf. Figure 4. Mating *N. cyanea*, male uppermost.

Nacaduba cyanea

Locality: Palmetum Park, Townsville, Qld.

Habitat: in filtered sunlight amongst understorey within artificial rainforest established in parkland

Date: 17 January 2002 at 11:13am EST (1113h)

Weather: overcast, still; temp. c. 30°C

Courtship Refusal

Couple seen in courtship flight, about one metre above ground in shaded situation. Old male with torn hind wings flew very close (within centimetres), more or less directly below female (in good condition), but slightly to her rear. Proximate pre-nuptial flight maintained for several seconds.

Female then landed about 0.6m away on sunlit, long protruding dead cane situated about one metre above ground. She faced in towards foliage. Male landed on same twig, directly behind female, facing her posterior, rapidly fanning his wings. Female remained still seemingly aligned to reduce shadow with sun directly above and behind. Male slowly edged forward, continuing to fan wings. Fanning action seemingly forced female forward several millimetres, female evidently attempting to angle herself away from fanning wings to avoid direct contact, as male crept aside female.

Whilst angling herself by partial pivot, female momentarily flicked wings (duration 0.04 seconds) once only, seemingly reactive from being struck by male's fluttering wings as he encroached on her, rather than as a refusal signal. Male now adjacent female's left side, facing same direction as her (towards foliage). Male's head level with female's thorax. Female again still with wings closed, she displayed no fluttering or obvious (signalling) wing-flicking movements.

Male continued to rapidly flutter his wings beside female, and simultaneously curled abdomen slowly around 180° to the right to attempt to connect with female's genitals. Abdomen now within three or four millimetres of female posterior, but connection not achieved. Abdomen maintained in semicircular, curled position for several seconds. Some probing and extension actions by male using last abdominal segments, but male did not walk forward to bridge genital gap. Male then slowly straightened abdomen. Female remained still for some 30 seconds after male's abdomen was withdrawn and then flew off. Male remained briefly on stem before departing.

Mating

Locality: Ella Bay National Park near Innisfail, Qld.

Habitat: filtered sunlit understorey, within deep shade in lowland rainforest.

Date: 3 January 2002 at 12:45pm EST (1245h)

Weather: sunny, still, temp. c. 29°C

N. cyanea couple in copulation seen resting with closed wings on protruding vine stem about one metre above ground along forest track. Male in medium-worn condition and normal sized, situated outermost facing track. Undersized female in fresh condition, smaller than male, facing foliage. Couple reluctant to fly, but enticed to traverse short distances by repeated disturbance to substrate. Five flights each involving one to two metres observed. Male carried consistently, and settled uppermost. Couple maintained closed wings after each landing.

On one occasion, after being coaxed onto tree trunk, pair walked several centimetres to find more suitable position before departing; male led, female crawled backwards. Couple preferred to land on twigs, stems and vine tendrils. They hovered momentarily over selected site before landing. Couple would not readily settle or remain settled if coaxed onto flat leaf surface where they were perhaps visually exposed (but more readily photographed). Couple crawled to align along leaf's edge instead (Figure 4).

Feeding

Ella Bay, on 4 January 2002 at about 0815h. Fresh male of *N. cyanea* seen feeding in filtered sunlight on wet leaf litter on forest floor. Male crawled slowly forward across surface of large orange leaf as he continually fed at condensation or dew. Male also fed briefly at moisture on the decomposing (blackened) leaf petiole at site of detachment (figure 5). It is possible that some minerals and/or amino acids from the gradually decomposing leaf were dissolved in the dew.



Figure 5. *N. cyanea* male feeding at dew on decomposing leaf petiole.

References

- Eastwood, R. & Fraser, A.M. 1999. Associations between lycaenid butterflies and ants in Australia. *Aust. J. Ecol.* 24: 503-537
- Manski, M.J. 1960. Food plants of some Queensland Lepidoptera. *Queensland Nat.* 16: 68-73

THE ENTOMOLOGICAL SOCIETY OF VICTORIA INC.
STATEMENT OF RECEIPTS AND PAYMENTS
FOR THE YEAR ENDED 31 DECEMBER 2001

GENERAL ACCOUNT

INCOME Subscriptions

Member	2001	1349	
	2002	<u>385</u>	1734
Institution	2001	179	
	2002	<u>173</u>	352
Donations			152
Brochure Mailout			110
Sale of Back Issues			<u>6</u>
			2354

EXPENDITURE

Journal Costs

Printing	810	
Postage	482	
Envelopes	<u>189</u>	1481
Lecture Room Hire		0
Corporate Affairs Fees		33
Stationery & Postage		45
Aust Ent Soc Sub.		88
Bank Fee		10
Government Taxes		<u>7</u>
		1664

SURPLUS/(DEFICIT) FOR YEAR

	690
Add Balance brought forward from 2000	<u>5505</u>
Balance carried forward to 2002	<u>6195</u>

LE SOUËF MEMORIAL FUND

INTEREST INCOME		
Treasury Corp. Victoria	126	
Commonwealth Bank Fixed Deposit	38	
Commonwealth Bank Savings Account	28	192
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Less		
Award Expenditure	0	
Science Talent Search	60	60
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SURPLUS/(DEFICIT) FOR YEAR		132
Add balance brought forward from 2000		1074
Balance carried forward to 2002		<u>1206</u>

STATEMENT OF ASSETS AT 31 DECEMBER 2001

GENERAL ACCOUNT

Bank Account	6196
Editor's Advance	104
Stock of Maps	40
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	6340
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LE SOUËF MEMORIAL FUND

Bank Account	1206
Fixed Deposit Stock	
Treasury Corporation of Victoria	1400
Commonwealth Bank Fixed Deposit	1000
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	2400
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	3606
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Corrigendum to Victorian Dragonfly Common Names

The article by Ian Endersby on Victorian Dragonfly Common Names [Vic Ent 32(1): 14-15 (2002)] inadvertently omitted the common name of *Telephlebia brevicauda*. It is the Southern Evening Darter. Also, please delete *Austrogomphus bifurcatus* (Dark Hunter) and replace with *Austrogomphus australis* (Inland Hunter). The author regrets these errors.

Observations on Mating Cicadas in Northern Queensland

Kelvyn L Dunn
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Summary

Observations on courtship and mating behavior are provided for two cicada species: the 'small pink-eye', an undescribed species of *Urabunana* Distant and the somewhat uncommon, *Macrotristria kulungura* Burns. In *Urabunana*, wing movements by the female occurred immediately prior to copulation, creating faintly audible sounds. It is speculated that this may represent a form of 'wing clapping'.

Primary Observations

Undescribed cicada, *Urabunana* sp.

Locality: Burra Range, west of Charters Towers, Qld.

Exact Observation site: near the telecommunications tower.

Habitat: woodland with ground cover of spinifex and grass. 90% of habitat, where cicadas were calling, recently burned; estimated to have been about one year earlier.

Date: 12 February 1994, 9:45am EST (0945h)

Weather: sunny, hot. Temp: not recorded (prob. about 30°C)

General observations

Several small cicadas with conspicuous pink eyes were seen settled, frequently a few centimetres above ground on stems of 30cm high grass plants. Males occasionally also settled on tree trunks, variably from near ground level to up to about one metre in height. Their calls involved a series of slow, single distorted clicks, which sounded a bit like the periodic arcing of an electrified fence. Calling began at about 0800h and ceased about midday (c. 1200h). Calling males were common at the time, but the population seemed very localised. Their remarkable pink eyes faded to black shortly after death. The cicada was later determined as a *Urabunana* sp.nov. for which I have chosen an appropriate common name, 'small pink-eye'. Pair in KLDC (author's collection); one duplicate male placed in collection of J.T. St Leger Moss.

Mating observation

Observer located within one metre and watching settled female at 0945h.

Chirping male calling during flight flew towards and landed vertically, anterior upward, next to settled female, similarly positioned on grass stem, 4cm above ground. Female irregularly flicked her wings whilst male approached and momentarily after he landed. Her rapid wing flicking movements were very softly heard at close range. Male then grasping grass stem curled abdomen under female's abdomen. Female tilted body, by straightening legs on one side to semi-expose underside to assist mating. Male copulated, grasping female on her side, both with head facing upward, female remained grasping substrate. Calling by male and wing flicking by female ceased upon commencement of coitus. Mating lasted 8 minutes (timed). Male then slowly withdrew abdomen, crawled upward, and waited on same grass stem about 5cm above female. Female remained still at site of copulation. Neither now made any sounds. Male then flew two metres away, settled and began calling again from new location. Female remained still.

Both adults subsequently captured by observer.

Comments and Discussion

The wing flicking action by the receptive female, which occurred during the male's approach and momentarily after his arrival, may disperse a pheromone to assist the male to locate her, and perhaps also signals her sexual receptivity (see also Dunn 1992). The barely audible sound created during this activity may be an unintentional artefact of dispersing the speculated pheromone. Alternatively, it may represent a form of 'wing clapping' – supposed intentional sounds created by the female in a few species during courtship to guide the male to her (see Dunn 1992 and references therein). Using unaided senses, this fleeting activity was too brief – just a second or two each time – and unexpected, to focus on how the sound was produced mechanically. That is whether the forewing costum actually struck together, hence technically 'clapped'.

Moulds (1990) commented that *Urabanana* species are small, generally uncommon cicadas mostly inhabiting grasslands in inland areas. Eight species have been described; four are known from very few specimens or just the original types. The calls where known, are described as soft 'buzzing' sounds.

Primary Observations

Macrotristria kulungura Burns

Locality: Emmett Creek, at highway crossing near Giru, south east of Townsville, Qld.

Habitat: dry, stony creek bed bordered by riparian scrub.

Date: 1 January 2002, 3:45pm EST (1545h)

Weather: sunny, very hot. Temp. 37°C

Pair of medium sized cicadas seen in copulation resting on overhanging branch at about two-metre height above creek bed. Couple took to flight upon approach of observer at two metres away, and somewhat tumbled to ground some 1.5m in front of point of departure. Pair scuffled on ground with flapping wings frantically trying to get airborne. Male was attempting to carry female for nuptial flight as he did most of the flapping. Female largely remained still, and partly faced the direction of the wriggling male (angle from male roughly 70° from memory). During approach of observer, they still struggled to get off ground from amongst the rocks and pebbles. Couple then captured and later identified as *M. kulungura*. Pair in KLDC.

Acknowledgements

John Olive of Cairns, kindly identified (in 2002) the cicada pair from Emmett Ck, and Dr John St Leger Moss of Brisbane, provided his closest generic determination (in 1994) of the undescribed species from Burra Range.

References

- Dunn, K.L. 1992. Notes on the silver cicada *Cicadetta celis* Moulds. *Victorian Ent.* 22(1): 12-17
- Moulds, M.S. 1990. *Australian cicadas*. NSW Univ. Press, Kensington NSW Australia

Australian Journal of Entomology Volume 41, Part 1, 2002

The Australian Entomological Society publishes the *Australian Journal of Entomology* quarterly. The Entomological Society of Victoria is an affiliated society and will, in future, publish the contents of the Journal for the wider interest of its members.

SYSTEMATICS

ID Naumann, MA Williams and S Schmidt: Synopsis of the Tenthredinidae (Hymenoptera) in Australia, including two newly recorded, introduced sawfly series associated with willows (*Salix* spp.)

NJ Fashing: *Nepenthacarus*, a new genus of Histiostomatidae (Acari) inhabiting the pitchers of *Nepenthes mirabilis* (Lour.) Druce in Far North Queensland, Australia

JA Berry and TM Withers: New gall-inducing species of *ormacerine pteromalid* (Hymenoptera: Pteromalidae: Ormocerinae) described from New Zealand.

P Kolesik, GS Taylor and DS Kent: New genus and two new species of gall midge (Diptera: Cecidomyiidae) damaging buds on *Eucalyptus* in Australia

EXOTIC INCURSIONS

DE Walter and M Shaw: First record of the mite *Hirstiella diolii* Baker (Prostigmata: Pterygosomatidae) from Australia, with a review of mites found on Australian lizards.

MJ Fletcher and PC Dangerfield: *Idiascapus clypealis* (Lethierry), a second new leafhopper pest of mango in Australia (Hemiptera: Cicadellidae: Idiocerinae)

MORPHOLOGY

A-P Liang and MJ Fletcher: Morphology of the antennal sensilla in four Australian spittlebug species (Hemiptera: Cercopidae) with implications for phylogeny.

ECOLOGY

E Wishart: Species composition and population studies of mosquitoes (Diptera: Culicidae) in the Mildura district in the Murray Valley of southern Australia.

PER Dale, H. Chapman, MD Brown, SA Ritchie, J. Knight and BII Kay: Does habitat modification affect oviposition by the salt marsh mosquito, *Ochlerotatus vigilax* (Skuse) (Diptera: Culicidae)?

IIM Wallace, GV Maynard and SJ Trueman: Insect flower visitors, foraging behaviour and their effectiveness as pollinators of *Persaania virgata* R.Br. (Proteaceae).

JD Farr: Biology of the gumleaf skeletoniser, *Uraba lugens* Walker (Lepidoptera: Noctuidae), in the southern jarrah forest of Western Australia

BEHAVIOUR

N Pike and A Meats: Potential for mating between *Bactracera tryani* (Froggatt) and *Bactracera neohumeralis* (Hardy) (Diptera: Tephritidae).

PEST MANAGEMENT

GW Levot and N Sales: Susceptibility to ivermectin of larvae of Australian sheep blowfly, *Lucilia cuprina* (Wiedemann) (Diptera: Calliphoridae)

GW Levot, JT Rothwell and N Sales: Baseline laboratory bioassay data for spinosad against populations of Australian sheep blowfly, *Lucilia cuprina* (Wiedemann) (Diptera: Calliphoridae).

BIOLOGICAL CONTROL

RJ Milner, GL Baker and AD Cliff: Effect of parasitism by *Trichapsidea oestracea* Westwood (Diptera: Nemestrinidae) on the susceptibility of *Phaulacridium vittatum* (Sjöstedt) (Orthoptera: Acrididae) to infection by *Metarhizium anisopliae* var. *acridum* Driver and Milner.

JE Ireson, RJ Holloway, WS Chatterton and BE McCorkell: Further investigations into the efficacy of *Neomalgalus capillatus* (Kramer) (Acarina: Bdellidae) as a predator of *Sminthurus viridis* (L.) (Collembola: Sminthuridae) in Tasmania.

THESIS SUMMARY

EA Jarjees: Interactions between the egg parasitoid, *Trichogramma australicum* Girault and its host, *Helicoverpa armigera* (Hübner): implications for the development of artificial diets.

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CONTRIBUTIONS TO THE VICTORIAN ENTOMOLOGIST

The Society welcomes contributions of articles, papers or notes pertaining to any aspect of entomology for publication in this Bulletin. Contributions are not restricted to members but are invited from all who have an interest. Material submitted should be responsible and original. The Editor reserves the right to have articles refereed. Statements and opinions expressed are the responsibility of the respective authors and do not necessarily reflect the policies of the Society.

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Contributions may be typed on A4 paper or *preferably* sent to the Hon. editor on an IBM formatted disk in *Microsoft Word for Windows*, *WordPerfect* or any recognised word processor software with an enclosed hard copy. Contributions may also be E-mailed to Internet address: ddobrosak@mira.net or ddobrosak@hotmail.com

The deadline for each issue is the third Friday of each odd month.

The Society's Home Page on the World Wide Web is located at:

<http://www.vicnet.net.au/~vicento/>

ADVERTISING

The charge for advertising is \$5.00 per half page.

The *Victorian Entomologist* is printed at MOORE Business Systems, Shell House Lower Lobby, 1 Spring Street, Melbourne, Victoria, 3000.

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DIARY OF COMING EVENTS

Friday 19 April Annual General Meeting

Presidential Address: Allan Kellehear Will Present a talk on:
"Waiter, there's a fly in my soup": The Role of Insects in Humour.

Thursday 16 May Council Meeting

Scientific names contained in this document are *not* intended for permanent scientific record, and are not published for the purposes of nomenclature within the meaning of the *International Code of Zoological Nomenclature*, Article 8(b). Contributions may be refereed, and authors alone are responsible for the views expressed.